

# The Influence of Bauhaus School on the Education of Three-Dimensional Form (Nirmana Space) at Bandung Institute of Technology

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## Abstract

The study of three-dimensional space at the Basic Course for Higher Education of Arts and Design at the Institute of Technology Bandung (ITB) has been conducted for more than 50 years. Ever since the beginning, the curriculum of this study refers to the models developed by the era of Modernism. This study program has been continued by educators who came from academic institutions with Bauhaus as their primary example.

This program trains students to give a creative, clear and structural response to a three-dimensional object, material character, and three-dimensional aspects. Emphasized is the Harmonization of forms, the students should create another form that is more concrete, although without any intended meaning or function, other than its own structural form.

This paper contains preliminary data is of a number of visual documents and interviews with several educators in the fields of fine art, design and crafts in Indonesia, and from the countries where Modernism and Bauhaus were born. Cultural backgrounds and geographical situations of each educator have also influenced their teaching methods. Additional Data is acquired from the Bauhaus Archive Museum. Then a temporary conclusion is presented whether this method is still in use or already changed.

The applied method in the case study is a method of qualitative research that is not based on mathematical logic, the principle of numbers, or statistical methods. By studying the process as much as possible a series of 'historical' three dimensional space shape, researchers aim to provide a complete view and a bit of depth on the subject under study nirmana space. The nature of this paper is a descriptive study or a review and analysis of the socio-historical context

Finally, this paper presents a timeline of the historical development of Three-Dimensional Space Study at the Basic Course for Higher Education of Arts and Design at the ITB.

**Keywords:** Bauhaus; Indonesia; ITB; Visual Art & Design Education; Visual Basic Three-Dimensional.

## 1. Introduction

The emergence time of *Aufklärung* (enlightenment) after the Renaissance in the history of Western society, has opened to the power of human consciousness itself. The power in question is something that can be extracted without discussing the power of the Divine because it is not possible always denied being behind it, like any other traditional beliefs presence as a source of truth. This condition provides a basis for the emergence of aesthetic forms and 'modern' forms. Advances and new discoveries in science and technology have been proven to improve human civilization so then it is believed to be a key change towards the prosperity of modern humans.

One milestone was the establishment of the founding of Modernism Bauhaus school in Germany. The basic principle is to integrate education Bauhaus design support all branches of science and the useful arts techniques, with the aim of producing designs that address the challenges of social reality in the modern industrial culture. Armed with a number of teachers who are leaders reformer vanguard artists (*avant garde*), the Bauhaus school was applying methods learned from the concept of romanticism and historicism classic works. The condition is the result of individual courage experimenting in materials processing method like any 'new perspective' in understanding the form by reducing it to basic geometric elements and then processed manipulation back in a

simple, 'honest', and rational design [1]. Many theories are contributed to the development of the Bauhaus school of design and modern architecture because some methods used are universal. In line with the above description, it can be traced and compared on the face of the statement of the circumstances and conditions of design education in Indonesia, especially in the Faculty of Art and Design at Bandung Institute of Technology. As something that is universal, design education is not limited by geographical restrictions, but by the objective of the problem to be solved. According to [2] "Design is art without borders, not fragmented, break invisibility. Openness is the design of the world itself".

It should be underlined that when looking at the order of life in Indonesia as a whole, by definition, it can be said that the state of Europe (industrialization) in the 1930s was not comparable to a state at the time of industrialization in the 2000s Indonesia (industrialization). However, if we discuss the specific study the universal aspirations, the implications of these circumstances will result in that opinion as a universal aspiration ideas that would generally apply through space and time. In this position the relevance of the discussion sourced from the Bauhaus school ideas in education that in fact has many universal aspirations, into the higher education of design in the era of industrialization in Indonesia lately.

Nirmana space is regarded as a very important part in the basic education curriculum of Art and Design (and Architecture) which was first introduced at the Bandung Institute of Technology to study when trying to link with a major influence in the world of the Bauhaus school of art and design education in general in Indonesia. Strong influence directly or indirectly caused by the spirit of the times (*zeitgeist*) in times of educational institutions began awakening want any strong influences of 'ideology' individual teachers. This program trains students to give a creative, clear, and structural response to a three-dimensional object, material character, and three-dimensional aspects. Emphasized is the Harmonization of forms, the students should create another form that is more concrete, although without any intended meaning or function, other than its own structural form.

## 2. Historical Review

Since the beginning of the development of design history in the West, it has been seen that the design is a mix between art and technology. This condition is the origin of the polemic about 'fine art' and 'applied art' or now known as design. In Indonesia today, the polemic regarding both still happens and be a separate issue in the development of the art world, but the situation is not going to intake in this study.

An early phase of Art and Design Education in Indonesia was firstly introduced or established on August 1, 1947 through the establishment *Universitaire Voor de Opleiding van Tekeneraren*, which then uses the Indonesian name: Balai Pendidikan Universiter Guru Gambar, which was placed in *Faculteit voor de Technische Wetenschappen* or in the Faculty of Science Engineering, University of Indonesia in Bandung whose previous name called *Technische Hoogeschool, Bandung Kogyo Daigaku* (during the Japanese occupancy) and is at present called the Bandung Institute of Technology.

As a form of recognition of Indonesian government in the existence of a parallel scientific Arts with other sciences, in 1956 the Minister of Education and Culture then arrange Core Curriculum which applies to all Higher Education Arts in Indonesia so that there is uniformity in the methods and teaching materials. Curriculum materials developed by Western educators who are in the country at that time. With most of the content of the curriculum itself refers to the many ways art education in the [3,4]. Weight no longer be regional education and workshops, as before, but based on the methodology and modern art education syllabus.

Part of the reality of history states that in the beginning, this institution supervised by the Dutch teachers, with the character of their thinking is ultimately instill systematic thinking, rational and modern, both in methodology and schools who adopted when doing creative process. This thought pattern is expected to continue in the times of the next closest after the young faculty who are schooled in some Western countries to return to Indonesia and offer thoughts taken from their study.

Faculty of Art and Design is located in the Institute of Technology Bandung continuously since the establishment despite the modern learning system has undergone a number of adjustments to the spirit of the time. Similar colleges in other regions in the country (Indonesia) is in fact then followed by using reference books, using the definitions adopted design, run the curriculum, as well as problem-solving methods in the creative process that reflects a modern design of educational activities as used in many developed countries. Circumstances is shown through the characters of the students work produced, although sometimes local influences also appear to give its own color.

Over time, as well as the various issues surrounding the phenomenon of education, the concept of Western colonial education as applied to the situation and condition of the nation's cultural and multicultural mental, acculturated, each is filled, influencing each other in the process of adjusting to establish a way that has typical nuance. Influence the development of social, lifestyle move toward a global, as well as the turnover dynamics of the economy, technological advances, rapid growth of communication and information systems, has contributed to cultural changes. Therefore, this transformation gives also an influence on the creative process in the implementation of the learning program.

Modern way of learning which adapted the Core Curriculum of the Teaching of Art and Design which has been in place since early art education was built, in fact has undergone changes as well as unconscious and not documented as a history. Nirmana learning spaces in the Basic Education Program Faculty of Art and Design ITB, begins with learning called "Art Dekoratif" which together with the convening of learning "Hand Job or Form" in the mid to late 50's. In the early '60s, later becoming known in some records appeared learning curriculum called "Nirmana" learning, the learning that replaces previously mentioned above. The name or term of "Nirmana" allegedly surfaced during Adjat Sakri and the team involved as educator in the learning of the lecture. At that time Adjat Sakri himself is known to have considerable interest in the use and diversity of Indonesian excavation. The word "Nirmana" is a word that was not known earlier adaptations. Some other information stating that the term "Nirmana" was first advocated by Subekto, who at that time became one of the educators. Another account says that Soedjoko was the first to use the term. Subsequently it becomes less important who started with the naming because the point of attention is concerned with the goals of learning.

The results of interviews with sources Rita Wizemann Widagdo (October 23, 2009), a history teacher at that time offender, stating that technically are taught in this learning object is to make a two-dimensional or three-dimensional images into objects that come to the surface to be more a form of relief. Objects are born is a form that can be palpated in three dimensional, it can be observed from the direction of the face with a high-coordination to late or to early-surfaces in geometric shapes on the field. The origins of such a form of learning itself is uncertain because of limited historical record that ever existed.

Information from informant Jusuf Affendi (23 November 2009), as learner in the early days of learning in the early 1960s, said that by looking at some previous learning; "Dekoratif Arts", "Hand Job or Form", then presumably the problem background cultural backgrounds that foreshadowed this program, or can be indeed 'pure art' as taught educators that post-colonial Modernist previously.

Around the year 1964-1965 during the year before Adjat Sakri stop led learning, Rita Wizemann Widagdo coming to replace him armed with the German Bauhaus educational background under the guidance of Herbert Hirche and Hanes Neuner. Both are professors at the *Staatlichen Akademie der Bildende Künste Stuttgart*. Hanes Neuner is a former assistant Lazlo Moholy-Nagy and Paul Klee, while Herbert Hirche is a former assistant Josef Albers, Wassily Kandinsky, Ludwig Mies van der Rohe and Lily Reich (Ramadin, 1994:66). All figures mentioned are the teachers at the Bauhaus school.

But a year later armed support Achmad Sadali and But Mochtar where was come home after educated in Aspen, United States, Rita began to develop the study of creativity known as Nirmana Space. Both figures support the educated are also known to be highly influenced by the Bauhaus school. One of their advisor is Professor Bayer, an educator of Bauhaus in Germany who emigrated to the United States to then build and continue the similar educational idealism there. This story can be found in the history of the Bauhaus school emigration to America.

Learning Visual Basic Three-Dimensional Space Nirmana given name, derived from those who embraced Modernist and Bauhaus are taught about the various issues concerning the rationality, logical nature, the character of certainty, measurableness, and quantitative logic. This style has changed the mindset of a modern aesthetic-ornamental-rational form only when the demands made on the basis of a clear function as a watchword phrases taught figure Modernism Louis Sullivan (1924) 'Form ever Follows Function '. This style teaches minimize the tendency to avoid the form of a variety of decorative things or just serve as decoration. Matching with the idea mentioned above is the famous quotation phrase expressed by Ludwig Mies van der Rohe (1933) 'Less is More' and 'God is in the Details', also in line with the statement of Adolf Loos (1910) that 'Ornament is Crime '. Such thought patterns is a radical attitudes to change the mindset of a modern aesthetic-ornamental-rational.

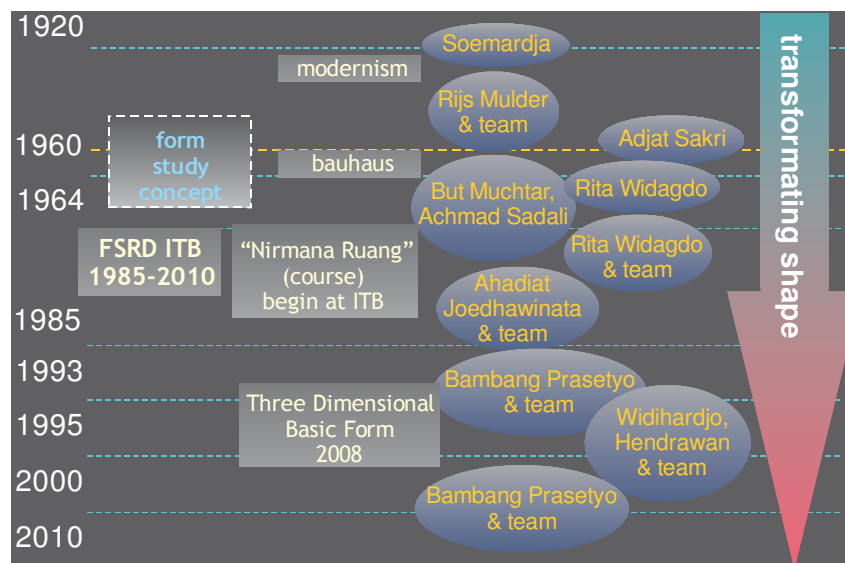


Figure 1: Displacement History Educators and his or her team at Learning Visual Basic Three Dimensions; each contribute to give its own character in the learning process .

Bauhaus concept that evolved because of the influence of the Industrial Revolution, to be very firm about how to respond to the material, thus encouraging trend devotees 'being' very geometric. Gravity causes the shape of the mass has gravity, so that the next shape or dimensions have space. Efficiency of the work does not invite the presence of a compromise in the name of appearance with the argument that if designed properly then the end result will look works well aesthetically functional. The Bauhaus concept became known as *sachlichkeit*, beauty is an expression of function [1].

### 3. Discussion on The Basics of Three Dimensions

Rita Wizemann Widagdo as next-generation alumnus Bauhaus school, in the early days of his arrival being very geometric anyway despite his background as a sculptor who frequently dealt with the plasticity of form. Rita stated that learning about the actual shape should be given in different ways. At a more fundamental role, should the learning objectives and the basic concept was first seated properly and fit, so the understanding of the space clearly exposed. Rita believes that a meaningful understanding of space in the x, y, z, or the width, height, along with the depth or volume, so that not only the form of the object as exposed relief. Thus, the principle of three Dimensional Visual Basic objects is also able to be defined as the objects that are in space, palpable, grasped, or even the subject is in the three-dimensional space that, as a person is in a room. Aristotle states that form is something that is surrounded, in other words under a view of an observer, whereas when observers were in the form, then that form named place or space. In the other hands, the form of Three-Dimensional Objects also can be explained visually by the following illustration:

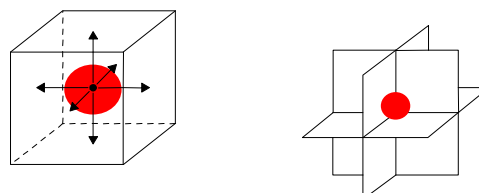


Figure 2 - a, b; Visual Basic Three-Dimensional Objects.

In further developments with tremendous boost to the natural charm of Indonesia's rich with organic forms, then the Nirmana learning space, the organic elements contained sufficient in many work tasks given to the learners. Thus the learning conditions of the time running with real purpose in addressing the same material, but contained the dynamics of adaptation in geographical situation of Indonesia. The theme is infused with a variety of tropical

flora is very diverse forms.

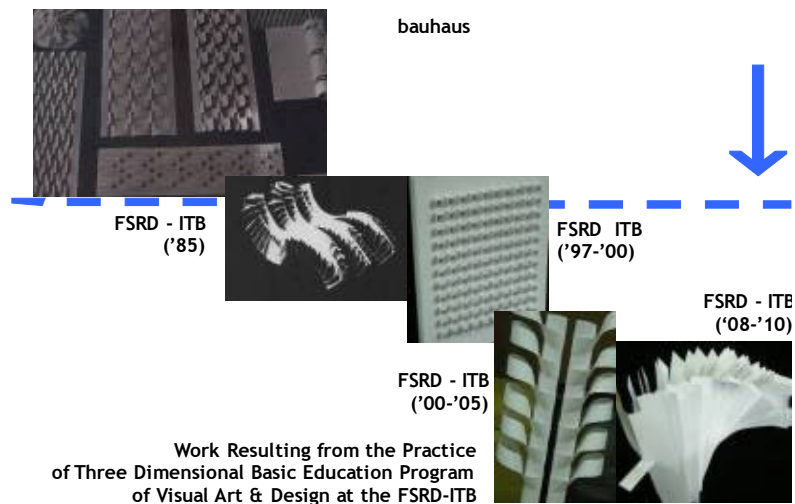


Figure 3. Order wide range of periodic training results.

Picture of tendency of Rita Wizemann Widagdo that was as an interesting fact in that time was when she is still active with 'geometric ideology' as it generally makes a Bauhaus alumnus, also simultaneously provide learning anatomy. The condition seems contradictory could be questioned by Achmad Sadali. Rita reasoned that learning anatomy will provide a basic understanding of the observational plasticity, depth of field and motion. The thinking has been showing another side of influences in the style of Nirmana teaching.

The scheme of relation between the work result and its history of Nirmana teaching at the FSRD ITB is illustrated on Figure 3 above. Some of the work results in the form of exercise is: in the upper limit of the dotted line is the works-Weimar Bauhaus education, being at the lower limit is exercise works produced since generation Learning 1985-2010. Structurally show changes shape; works from the Bauhaus looks structurally flat just above the horizontal plane, is in the application of the learning program in Art Education ITB, seen in the figure that began organically as well as 'up' or 'stand'. In addition, the work of the Bauhaus era, because of the award and experimentally very strict priority to the efficiency of the material, the shape is very limited decision-making by optimizing material utilization. To dispose of a small portion of the main body of the work material required high effectiveness considerations. This attitude was adapted until around the end of 90s. After that work in Arts Education works was built on a series of elements of the form of separate material so as to give the possibility to have more free form structure so as to provide opportunities and sculptural tendencies and 'wake up'.

In all-education-an art, "form" acts as a way of speaking to express the idea of a concept or idea. Forms may have been a two-dimensional display or a flat display which can be enjoyed visually, as well as three-dimensional look that is at once also can be touched, held, or held and the building volume. In the condition when the physical had more size than the size of humans as well as humans and their surrounding activity in which the forms are then interpreted by the space. In order to provide a basic briefing on the education of students in art and design (and architecture), one of the teaching material is provided and the basis for the provisioning of understanding about the skills of creative skills in designing a process to achieve a form of conformity to norms relating to it is. This theme is contained in the subject called: Three Dimensional Visual Basic or better known as Nirmana Space.

Learning Nirmana Space aims to provide an understanding and experience of the forms to students as subjects such forms creation. Learning basic understanding of the material Three Dimensional Visual Basic is that any three dimensional objects around humans have dimensions that can be felt, seen, having the structure of space: length, height or thickness, and width. In order to construct a three-dimensional shape, then outlined the elements of a row or a form element: line, shape, texture, space, and color into a single summary drawn up by the harmonization of rules in different formats: the balance of the composition, rhythm, proportion, emphasis on



the object shape, and structural regularities, as outlined in the materials used at that time. Learning is solely aimed at providing basic training to give creative ability to process three-dimensional shape, or form space, without the burden of any function or significance in the formation process of introduction. It is said that departing from the characteristics of this course is called "Nirmana Space", which freely translated means "three-dimensional shape or space of nothingness". The term "Nirmana" (rooted in Sanskrit word) means: "nir" = no, without, and "mana" which means "meaning".

The definition can also be interpreted as a form of three-dimensional concept that has not been weighed down anything other than structural problems of the form. Nirmana Space study aims to produce shades of meaning shape through 'dialogue' between the material with the condition that the learners 'search form' which is being practiced, by using a variety of techniques that may be performed on the material. Relevance to the matter, in this study the training element of creativity to get the most important emphasis.

Some basic ideas as conceptual elements of learning in the form of Nirmana Space is represented through several key considerations are: the creation process is technically harmony, Balance, Proportion and Unity, Rhythm, Emphasis, Structural and Sculptural. Harmonization rules applied to materials with reasonable technical process and treatment in accordance with the material. Technical process is a technical issue that was in the form of training stages. Look at the document form the training results of the early days of this learning takes place (around the time of 1960, and even up to the 1990s period). Of a number of data acquisition in the interview (time span 2008-2012), technical execution efficiency training is influenced by material in another sense, the question of the value of a material economically, providing considerable influence. Any treatment of the material and the actions to be taken by students almost always refers to the efficiency with minimal use of additional materials or auxiliary materials. Learners are encouraged to optimally carry out the cultivation of the material, so it does not lead to the creation of waste material.

This recommendation also affects the work that uses techniques such as a paper though, such as a crate, use of adhesives, and so on. His plea is that the final form must be constructed in stages from the material given to when the process has arrived at a stage towards the end, the overall form that was by itself has been completed. The situation can be described as one-sheet after sheet of knitting yarn, crochet hook after hook series, until the finished knitted fabric sheet.

Since the beginning '90an, emphasis will be the efficiency of the material has been slightly shifted towards time efficiency with the aim of achieving a form as to make it easier. In meeting the achievement goals do some action steps that can be parsed as modular. At the next stage the modules are completed formed can be linked into a new building that will be the 'building' end.

Observed training examples of objects that use the training material is paper. Paper is a material object there is always held at the beginning of learning. Paper is a material which is very unusual because it has always been there and is also used since this study was also carried out in the schools 'Bauhaus'.

Discussion of balance, proportion and unity at a later stage can be considered important conceptual elements. Balance adrift in a form very close to the issue of proportion. Achievement of balance does not necessarily require a form to be symmetrical, or to the two sides of the right and left, or front and rear congruent. Balance can be achieved when the parts of a proportionately present form or balanced and proportionate. The end result is the overall form of 'feel good' views, and each piece is evenly shape, play a role in supporting performances.

Balance was considered successful if each part of a wake presents compact form, bounds to each other, and does not necessarily appear as something alien in the other parts and to the whole shape.

Rhythm as a further element in the creation of conceptual forms is the arrangement or order (arrangement) elements in the form of an up form, so that it comes up with some regularity shows. Regularity of a rhythm can be an arrangement of soft, rippling moving slowly, or it can be rough, as the water ripples when the wind blows breezy, or when the waves pounding the shore rumble, but still has a constant rhythm. All of them still show how the rule was applied to a shape.

Emphasis subsequent ranks as an important conceptual element. A subtle rhythmic shapes sometimes need to be given a particular emphasis on the form, as confirming the impression, that a form still has the power, not making complacent which causes the form to not have a value visually. The emphasis on this form despite this, it remains as part of the overall shape is not not perceived no reason and argumentation.

Training using the paper material can very clearly describe the structure of the form. Flat piece of paper, neatly, which was originally only a field, will not be able to stand up, be present on the horizontal surface. By giving

just a reaction; squeeze, bend, or fold, paper plane to have some 'legs' of the field are bent to be able to support other parts of the upright on a horizontal surface. Structure is created as the ability to establish the form and binding part of the elements forms into a shape. Known that there is a strong structure in addition to the well known weak structures. The structure is one of the key conceptual elements in the form of the design process.

Therefore, the levels of each key consideration vary in each period. In order to understand their changing, author points the values on each key consideration on each period, called Change Assessment Form, that is mentioned in Table 1 below. Figures in Table 1 are not obtained because the conceptual elements of the form is still spotty, sometimes applied only to levels that are not optimal.

Final conceptual element is 'sculptural' in the terminology of a language that is no more than a word used to indicate that a form is present in the form of a horizontal surface as an independent, stand-up stand-alone unit or as a form of built form from the modular form. Understanding of sculptural intends to distinguish from other forms which are more in the form of relief, flat on top of a field of horizontally, or vertically on the wall. The understanding is also intended to give emphasis on a form that is affected by gravity and orientation toward the sky freely.

Spread of points assessment is from 1 to 5. Top 5 figures for a more meaningful value good or positive. The value of 1 for the meanings that are not or poorly. As in the technical process, the lower the assessment rate for the working of training to achieve a form that is difficult. The easier a work to do, then the acquisition value for this phase will be even harder.

*Table Change Assessment Form.*

	<b>Techn. Process</b>	<b>Balancing</b>	<b>Proportion</b>	<b>Rhythm</b>	<b>Unity</b>	<b>Emphasis</b>	<b>Structural</b>	<b>Sculptural</b>
1960-1965	2	4	4	3	4	5	3	3
1965-1970	2	5	5	4	5	5	5	4
1970-1980	2	4	5	5	4	5	5	4
1980-1990	2	4	5	5	5	5	5	4
1990-2000	3	4	4	5	5	5	5	5
2000-1010	4	3	5	5	5	5	5	5

Inferred valuation figures is based on observations made on visual documents obtained, as well as unstructured discussions with the teaching team learning Visual Basic Three-Dimensional, and some teachers in the Art Education, Design, and Craft of periods ago .

Below is a schematic illustration of the above table.

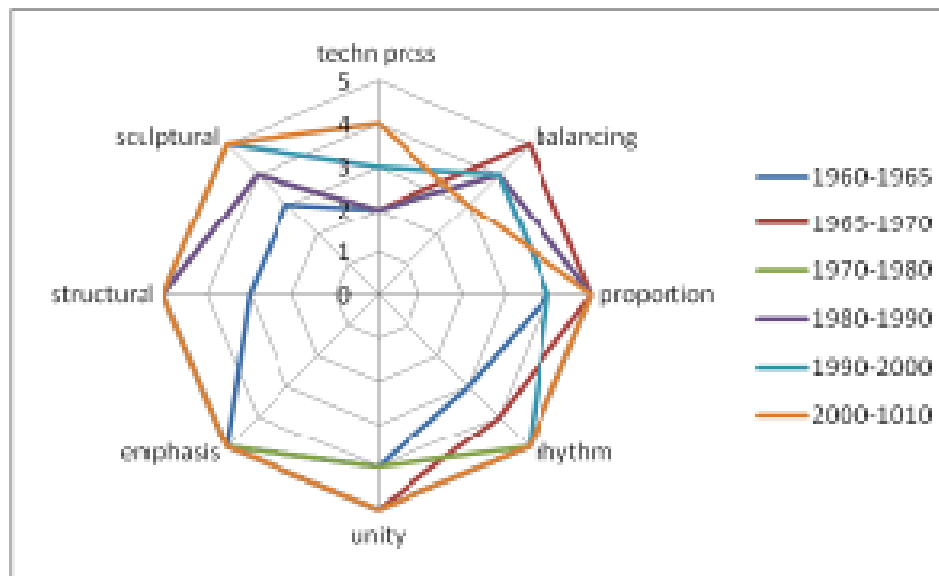
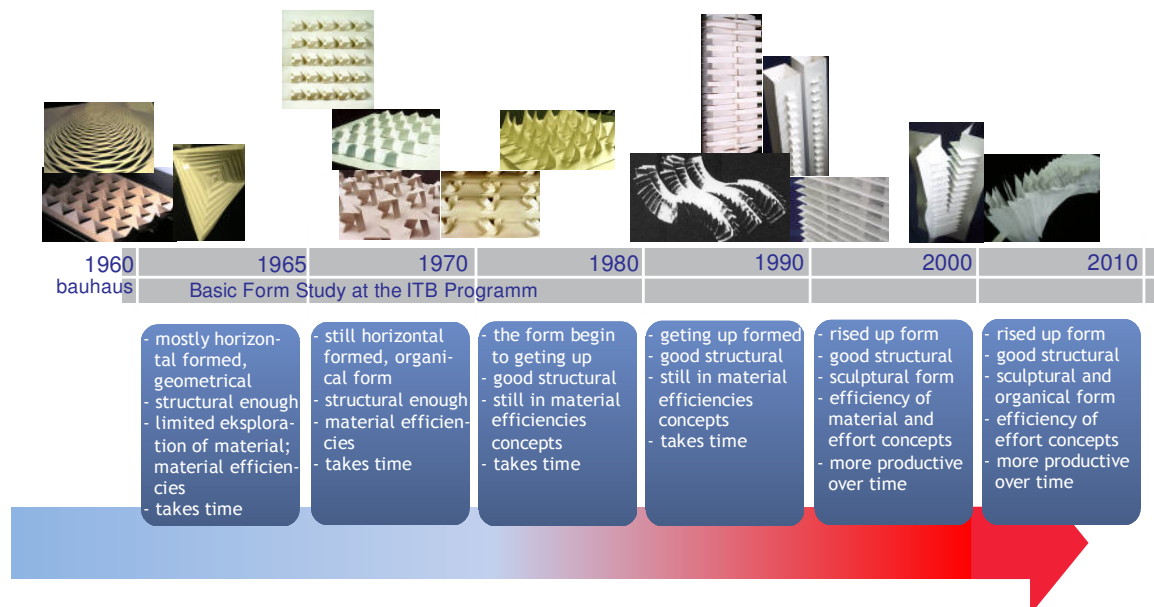


Figure 4. Chart Change Assessment Form

Referring to the depiction on the chart, it appears that the dynamics of the changes seen in the technical process of processing the material or process material exploration. In the early days, training is more difficult in reality. Further structural mastery at once sculptural looks began to emerge in the 2000s. In the review of balance, proportion, rhythm, unity, and emphasis, dynamics is seen moving up and down among them, however, it is showed relatively stable.

Figure 5. Time Line of Three Dimensional Basic Forms



Based on the Chart of Assessment Form before, as the result, author arranged into the Time Line of Three Dimensional Basic Forms as shows on Figure 5 above. It is the changing in the character of work results on learning Visual Basic training on Three Dimensional, since the teaching was held at the Bauhaus, and then brought to the Institute of Basic Education Arts, Design, and Craft at ITB, until 2010.



#### 4. Conclusion

In the early years of learning, the technical material quite uneasily, since it limits the efficiency of material and somewhat distract the exploratory freedom. The results from these limits, despite having woken up structurally, ultimately gave birth to geometric forms that tend to be flat, horizontal. Differences appear at times throughout the 1990s until 2010 when flexibility in material processing, technically provided opportunities for learners to produce more sculptural forms. Providing flexibility to explore the impact of productivity, in other words, the efficiency of the time usage, to provide a wider range of variant forms within the same amount of time relative to the previous time.

The issue of balance, proportion, rhythm, unity, and emphasis, the dynamics are seen moving up and down in every learning period, but showed stability. This situation may be exacerbated because of the component concepts are standard variables that should always be present in the form of exploration. This exploration will be slightly increased or decreased depending on the diversity of interests of the educators who took turns as well as the situational dynamics. In the end, the influence of the Bauhaus school, whether it is recognized or otherwise, has laid the foundation of conceptual thinking. Although, in the future, even at the Institute of Technology Bandung - in particular – some modification has to be undergone in line with the spirit of the times (*zeitgeist*).

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